In the Specification:

On page 1, after the title insert the following:

RELATED APPLICATIONS

This is a U.S. national stage of application No. PCT/DE2004/001594, filed on 22 July 2004.

On page 1, before lime 11, insert the following heading:

FIELD OF THE INVENTION

On page 1, before line 20, insert the following heading:

BACKGROUND OF THE INVENTION

On page 2, before line 7, insert the following heading:

SUMMARY OF THE INVENTION

On page 2, amend the paragraph beginning on line 7 as follows:

~~The present invention is based on the object of providing~~ One object of the present invention is to provide a simpler and more cost-effective method for the production of optoelectronic semiconductor chips of the type mentioned in the introduction.

A further object of the present invention is to provide a semiconductor chip produced according to such a method.

On page 2, delete the paragraph beginning on line 14 through line 18 in its entirety.

On page 2, amend the paragraph beginning on line 20 through page 3, line 5 as follows:

~~According to the invention, the~~ This and other objects are attained in accordance with one aspect of the present invention directed to a method for the production of a plurality of optoelectronic semiconductor chips each having a plurality of structured elements with respectively at least one semiconductor layer. ~~of the type mentioned in the introduction comprises at least the following method steps: provision of a~~. A chip composite base is provided having a substrate and a growth surface[[;]] ~~growth of a~~ A non-closed mask material layer is grown onto the growth surface in such a way that the mask material layer has a plurality of statistically distributed windows having varying forms and/or opening areas. [[, a]] A mask material ~~being~~ is chosen in such a way that a semiconductor material of the semiconductor layer that is to be grown in a later method step essentially cannot grow on said mask material or can grow in a substantially worse manner in comparison with the growth surface[[;]] ~~essentially simultaneous growth of semiconductor~~. Semiconductor layers are grown essentially simultaneously on regions of the growth surface that lie within the windows. [[;]] ~~and singulation of the~~ The chip composite base with applied material is singulated to form semiconductor chips.

On page 3, amend the paragraph beginning on line 14 as follows:

~~Preferably, the~~ The chip composite base ~~has~~ can have at least one semiconductor layer grown epitaxially onto the substrate. In this case, the growth surface is a surface on that side of the epitaxially grown semiconductor layer which is remote from the substrate.

On page 4, amend the paragraphs beginning on lines 11 and 23 as follows:

After the growth of the semiconductor layers of the structural elements, a layer made of electrically conductive contact material that is transmissive to an electromagnetic radiation emitted by the active zone ~~is preferably~~ can be applied to said semiconductor layers, so that semiconductor layers of a plurality of structural elements are electrically conductively connected to one another by the contact material. It is thereby possible to form electrical contact structures which absorb a small proportion of electromagnetic radiation generated in the component.

The average thickness of the mask material layer ~~is preferably~~ can be less than the cumulated thickness of the semiconductor layers of a structural element, whereby it is possible to produce structural elements with advantageous forms.

On page 5, amend the paragraph beginning on line 5 as follows:

The planarization layer ~~preferably has~~ can have a material having dielectric properties.

On page 5, amend the paragraph beginning on line 33 through page 6, line 2 as follows:

~~Preferably, the~~ The growth conditions for the growth of the mask material layer ~~are~~ can be set in such a way that most of the windows are formed with an average propagation of the order of magnitude of micrometers. As an alternative it is possible to produce most of the windows with an average extent of less than or equal to 1 μm.

On page 6, amend the paragraphs beginning on lines 18 and 26 as follows:

In the growth of the semiconductor layers of the structural elements, the growth conditions ~~are preferably~~ can be set and alternatively or additionally varied during growth in such a way that the semiconductor layers are formed with a form that is advantageous for the coupling-out of electromagnetic radiation, for example an at least appropriately lenslike form.

The mask material layer and the semiconductor layers ~~are particularly preferably~~ can be grown by means of metal organic vapor phase epitaxy (MOVPE).

On page 6, delete the paragraph beginning on line 34 through page 7, line 2 in its entirety.

On page 7, before line 4, insert the following heading:

BRIEF DESCRIPTION OF THE DRAWINGS

On page 7, before line 16, insert the following heading:

DETAILED DESCRIPTION OF THE DRAWINGS

On page 8, amend the paragraph beginning on line 22 as follows:

The production of a non-closed Si_xN_y layer is effected for example in an MOVPE reactor by admitting SiH_4 and NH_3 at a suitable reactor temperature, which may typically lie in a range of between 500 and 1100°C. However, the reactor temperature may also lie above or below this range. Such methods are described for instance in Hageman, P.R. et al., "Improvement of the Optical and Structural Properties of MOCVD Grown GaN on Sapphire by an in-situ SiN Treatment," phys. stat. sol. (a) 188, No. 2 (2001), 659-662, the content of which is in this respect hereby incorporated by reference. As an alternative, the Si source used may also be tetraethyl-silicon ($Si(C_2H_5)_4$) or a similar Si-containing compound which is suitable for epitaxy.

On page 8, amend the paragraph beginning on line 35 through page 9, line 9 as follows:

In the growth stage shown in Figure 1D, the mask material layer 11 has been fully formed. It has a plurality of statistically distributed (i.e., not positioned in a regular array) windows 2 having varying forms and opening areas. The deposition conditions are chosen for example such that most of the windows have an average extent of the order of magnitude of micrometers. As an alternative, most of the windows may also have an average extent of less than 1 μm. It is thereby possible to produce more and smaller structural elements and e.g. to achieve improved coupling-out of radiation from the component structures.

On page 9, amend the paragraph beginning on line 22 as follows:

A semiconductor layer sequence 8 forms a structural element 12 with each of said windows 2 having a structural element 12 associated with it. In the sense of the invention, it is also possible in this case for semiconductor layers of a plurality of structural elements to overlap or for a plurality of structural elements to have at least one common semiconductor layer. This is the case for example if semiconductor layer sequences 8 grow laterally over the mask material layer to an extent such that semiconductor layers of adjacent structural elements 12 partly or wholly accrete. In such cases a boundary between two adjacent structural elements runs along a line along which semiconductor material situated on the mask material layer has a minimum thickness.

On page 10, amend the paragraph beginning on line 14 as follows:

By virtue of the fact that the windows have opening areas of different magnitudes, different material compositions result for the layers of the semiconductor layer sequences 8 that are deposited therein. This is an effect of the so called selective growth epitaxy. Generally, the semiconductor alloys grown will comprise the same elements, but there is a variation in alloy composition depending on the window sizes. The reason for this effect is that different elements of the alloys to be grown have different diffusion constants for diffusion on the mask material. In the case of structures emitting electromagnetic radiation, different emission spectra consequently result, so that with radiation-emitting components of this type it is possible overall to achieve a broader emission spectrum than with conventional components.